

## CLAIMS

What is claimed is:

1. A permanent magnet synchronous motor comprising a stator and a permanent magnet excited rotor, said stator including a winding which has cyclically repeating winding factors  $|\xi_p| = 0.945$ ,  $|\xi_{5p}| = 0.140$ , and  $|\xi_{7p}| = 0.060$ , and a skew angle  $\gamma = \frac{2\pi}{18p}$ , wherein p is the number of pole pairs.
2. The synchronous motor of claim 1, wherein the winding is a 4-pole two-layer winding, and the stator has a slot number  $N = 9$  slots.
3. The synchronous motor of claim 1, wherein the winding includes prefabricated coils.
4. The synchronous motor of claim 1, wherein the stator includes a laminated core with a slot skew of at least half a slot pitch.
5. The synchronous motor of claim 1, wherein the rotor has an outer circumference and includes permanent magnets which are arranged on the outer circumference of the rotor.

6. The synchronous motor of claim 1, wherein the rotor includes permanent magnets which are arranged interiorly of the rotor.